

# Editorial

The earliest research on the siliceous raw materials in the territory of Poland dates back to the first years after World War I. A patriarch of these studies was an archaeologist Stefan Krukowski (1890–1982). Together with Jan Samsonowicz (1888–1959), then a young geologist, they undertook a grand survey focused on flint deposits and prehistoric exploitation sites. The year 2022 brings a centennial celebration of their most prominent discovery: Krzemionki (Fig. 1). Exactly on July 19th, 1922, J. Samsonowicz realized that the unusual landscape of Krzemionki is a remnant of a prehistoric flint mine; he later wrote about this: “It came out that the mentioned pits are prehistoric mining shafts, filled with debris and soil” (Samsonowicz 1923: 22, translation by the Editors).

This discovery, or actually a correct interpretation of the previous observations, was a turning point in the studies on the Central European prehistory. It initiated a series of archaeological excavations, created new research fields, and prompted further development of studies over the prehistory of flint mines in Poland and abroad (e.g., Przychodni and Jedynak 2022). Currently, in European archaeology, flint mines constitute a separate type of archaeological sites (Lech 2012) as well as a basis of a well-defined research field with its own methodology. The best tangible evidence of that is the Commission on Flint Mining in Pre- and Protohistoric Times of the International Union of Prehistoric and Protohistoric Sciences (Union Internationale des Sciences Préhistoriques et Protohistoriques – UISPP), founded in 2006. The first plenary meeting of the Commission was held on September 3rd–4th, 2007, in the Institut d’art et d’archéologie at the Université de Paris 1 – Panthéon-Sorbonne, France. The event was organized by Pierre Allard, Françoise Bostyn and François Giligny, and focused on a topic of *Archaeology of the pre- and protohistoric flint mining: a contemporary perspective*. Since that moment, ten more meetings already took place in a number of countries. The 9th International Conference of a particular topic: *The flint mining studies: archaeological excavations – extraction methods – chipping floors – distribution of raw materials and workshop products* was organized in Poland by the Institute of Archaeology and Ethnology of the Polish Academy of Sciences in Warsaw, Institute of Archaeology Nicolaus Copernicus University in Toruń, Institute of Geological Sciences, Polish Academy of Sciences and Archaeological Museum and Reserve “Krzemionki” at 19–21th September 2019 (Fig. 2). The conference was held at the Krzemionki museum and reserve (Fig. 3). The motivation to hold the meeting there was enlisting of the Krzemionki (as the Prehistoric Striped



**Fig. 1.** Archaeological Museum and Reserve “Krzemionki” 17 July 2022. Celebration of the 100th anniversary of the discovery of the Krzemionki mines. Promotion-education stall of the Institute of Archaeology and Ethnology, Polish Academy of Sciences. Photo: D. H. Werra.

Flint Mining Region), at the UNESCO World Heritage list on July 6th, 2019, almost a hundred years after its discovery (1922). The speakers presented various papers around the theme of this conference (Werra *et al.*, 2019) and participated in tours at the mining site, both on the surface and underground. Other excursions were organized to the nearby Borownia flint mine (Lech 2021) and the settlement at Ćmielów “Gawroniec hill” (Balcer 2002), both of which are included in the protected area’s range. The last day of the conference was dedicated to visiting the Polish Jura region’s flint mines in Udorka valley (Fig. 4; Sudół-Procyk *et al.*, 2021).

Most of the papers published here were presented in preliminary form at the conference mentioned above. The first two papers in the volume are dedicated directly to the history of the Krzemionki flint mining. In *The Centenary Jubilee of the Discovery of Prehistoric Striped Flint Mines in Krzemionki* (pp. 9–21), Andrzej Przychodni and Artur Jedynek present a hundred years-long history of this exceptional heritage monument. The authors shortly present a series of archaeological research, protection and ownership transformation of the site. They describe its way to the UNESCO World Heritage Site list and the celebration of the 100th anniversary of the discovery, that took place this



**Fig. 2.** Poster promoting the 9th International Conference UISPP Commission on Flint Mining in Pre- and Protohistoric Times 19-21 September 2019. Graphic elaboration: Ł. Figura.

year (July 16–24th, 2022), as well as other events accompanying these celebrations. Then, Magdalena Malak presents the publication history of the striped flint mine in Krzemionki within the first years after the discovery of the site, until 1939 in *Krzemionki in the Literature Published in the Years 1923–1939* (pp. 25–38).

The next two papers are related to the research methods used in the study of prehistoric flint mines. The first paper in this group, by Artur Jedynek and Piotr Wroniecki, *Non-invasive Investigation of Segment C of the Krzemionki Exploitation Field. Initial Research Results* (pp. 39–59), illustrates the results of non-invasive research that has been undertaken in the southern arm of the Krzemionki exploitation field. The second one, *Re-working the Past: Evidence for Late Neolithic and Early Bronze Age Flint Extraction at the Early Neolithic Mines of Sussex* (pp. 61–86) by Jon Bączkowski, summarises the evidence

for Late Neolithic and Early Bronze Age flint extraction at the Southern English mines. The paper attempts to define the Late Neolithic and Bronze Age flint working activity at the mines and question if this activity was associated with new episodes of shaft-mining or informal methods of extraction.

The next three papers concern a problem of flint mining as a source of knowledge about prehistoric communities. In the first paper, *At the Turn: Flint Mining as an Element of Social Changes in the Second Half of the Fifth Millennium BC in Western Lesser Poland* (pp. 87–108), Elżbita Trela-Kieferling and Damian Stefański provide a description of the problem of flint mining in western Lesser Poland in relation to technological change in lithic production, so-called “the metric change” – the shift in the length of flint blades. Next, in *Workshop Places at Chessy (Seine-et-Marne Dpt., France): Contextual and Technological*



**Fig. 3.** Participants of the 9th International Conference UISPP Commission on Flint Mining in Pre- and Protohistoric Times. Photo: T. Witkowska.

*Aspects* (pp. 109–125), Anne Hauzeur and colleagues present results of recent excavations at Chessy (France). Analysed materials for workshop places allowed the authors to distinguish places of different functions. The last paper in this group is *The Flint Quarry of Pozarrate (Treviño, Spain) in the Iberian and Early European Neolithic mining context* (pp. 127–147) by Antonio Tarrío and colleagues. The paper presents results of a recent research on the Early Neolithic flint quarry of Pozarrate (Treviño, Burgos) in the north of Spain. The paper presents very interesting new findings as well as radiocarbon dates.

The last group of papers concerns a problem of identification and determination of siliceous rocks. In the first text, *Mapping Natural Exposures of Siliceous Marls and Cherts as Potential Zones of Raw Material Acquisition. The Case of the Eastern Polish Carpathian Foothills and the Rzeszów Settlement Region (SE Poland) in the Neolithic and Bronze Age. Preliminary Results* (pp. 149–161), Andrzej Pelisiak presents barely known raw materials (siliceous marls and cherts) from the area of southeast Poland. In *Striped Flint in Archaeological Materials Around the Outcrops of the Kraków-Częstochowa Striped Flint Variety* (pp. 163–185), Magdalena Sudol-Procyk with colleagues present the state of knowledge about a striped flint variety from the Ryczów Upland (southern Poland). Those newly discovered outcrops have opened a discussion on the issues of the provenance of striped flint and the ways it was used by the prehistoric communities inhabiting the central part of the Kraków-Częstochowa Upland. Finally, in *Prehistoric Stone Raw Materials from the Bükk Mountains in Northeastern Hungary* (pp. 187–229), Norbert



**Fig. 4.** Participants of the 9th International Conference UISPP Commission on Flint Mining in Pre- and Protohistoric Times visiting the mine of chocolate flint in the Udorka Valley (Kraków-Częstochowa Upland). Photo: M. Krajcarz.

Faragó and colleagues present an outline of the current state of information concerning the prehistoric use of the diverse silicified source materials of the Bükk Mountains.

The volume ends with two reviews of monographs dedicated to two prehistoric flint mines. The first review by Hubert Binnebesel concerns a monograph published in 2020, dedicated to a mine site named “Za garnarczami” in Ożarów (central Poland). The second one by Dagmara H. Werra concerns the monograph on Neolithic flint workshops of the Bębło mining complex (southern Poland), published in 2021. Both these monographs present archival archaeological research and the publishing of both books was possible thanks to the co-financing of the Ministry of Culture and National Heritage of Poland and the National Institute of Cultural Heritage. We recommend to give a special attention to both these reviews, mainly because they deal with all the issues raised in this volume. The readers will find there chapters concerning the history of research at the site, methodology applied to a prehistoric flint mine, as well as the problems of flint mining as a source of knowledge about prehistoric communities and the problems of identification and determination of siliceous rocks.

Finally, we extend special thanks to all the reviewers of this volume for their time and commitment; the volume could not have been completed without their cooperation and assistance. The list of reviewers includes: Jon Bączkowski (Toruń), Dariusz Bobak (Rzeszów), Françoise Bostyn (Paris), Janusz Budziszewski (Warsaw), Pavel Burgert (Praha), Jean-Philippe Collin (Brussels), Tim Kerig (Kiel), Adrián Nemergut

(Nitra), Marek Nowak (Cracow), Astrid Johanne Nyland (Stavanger), Andrzej Peliś (Rzeszów), Antonín Přichystal (Brno), Rafał Siuda (Warsaw), Yevhenii Sliesariiev (Kiel), Iwona Sobkowiak-Tabaka (Poznań), Damian Stefański (Cracow), Xavier Terradas (Madrid), Witold Gruźdź (Warsaw) and Piotr Włodarczyk (Cracow).

The English language correction of articles was done by Paul M. Barford in consultation with the volume editors, which hopefully allowed us to avoid substantive errors. Nonetheless, we take responsibility for errors that remain.

Dagmara H. Werra  
 Marzena Woźny  
 Maciej Krajcarz  
 Magdalena Sudół-Procyk

## REFERENCES

- Balcer, B. 2002. Ćmielów – Krzemionki – Świeciechów. Związek osady neolitycznej z kopalniami krzemienia [Summary: Ćmielów – Krzemionki – Świeciechów. Relations between the neolithic settlement and flint mines]. Warszawa. Instytut Archeologii i Etnologii Polskiej Akademii Nauk.
- Lech, J. 2012. Przemiany kulturowe w prehistorii w świetle badań górnictwa krzemienia: poszukiwania rytmu. In B. Gediga, A. Grossman and W. Piotrowski (eds), *Rytm przemian kulturowych w pradziejach i średniowieczu*, 189–231. Biskupin–Wrocław. Muzeum Archeologiczne w Biskupinie. Biskupińskie Prace Archeologiczne, 9, Polska Akademia Nauk – Oddział we Wrocławiu. Prace Komisji Archeologicznej 19.
- Lech, J. 2021. Borownia upon the River Kamienna (Poland) – a prehistoric mine of striped flint in light of the first excavations. In F. Bostyn, F. Giligny and P. Topping (eds), *From the Mine to User: Production and Procurement Systems of Siliceous Rocks in the European Neolithic and Bronze Age. Proceedings of the XVIII UISPP World Congress (4–9 June 2018, Paris, France). Volume 10. Session XXXIII-1 and 2*, 113–130. Oxford. Archaeopress Publishing.
- Przychodni, A. and Jedynek, A. 2022. The centenary jubilee of the discovery of prehistoric striped flint mines in Krzemionki. *Archaeologia Polona* 60: 9–21.
- Samsonowicz, J. 1923. O złożach krzemieni w utworach jurajskich północno-wschodniego zbocza gór Świętokrzyskich. *Wiadomości Archeologiczne* 8(1): 17–24.
- Sudół-Procyk, M., Brandl, M., Krajcarz, M. T., Malak, M., Skrzatek, M., Stefański, D., Trela-Kieferling, E. and Werra, D. H. 2021a. Chocolate Flint: new perspectives on its deposits, mining, use and distribution by prehistoric communities in Central Europe. *Antiquity. Project Gallery* 95(383), 1–7. <https://doi.org/10.15184/aqy.2021.48>
- Werra, D. H., Sudół-Procyk, M., Jedynek, A., Kaptur, K. and Krajcarz, M. (eds.) 2019. *9th International Conference UISPP Commission on Flint Mining in Pre- and Protohistoric Times: “The flint mining studies: archaeological excavations–extraction methods–chipping floors–distribution of raw materials and workshop products”, 19–21 September 2019, Ostrowiec Świętokrzyski: program–abstracts–a field guide*. Warszawa. Instytut Archeologii i Etnologii Polskiej Akademii Nauk.